

JOE WATERS

Title: Reentry

During the later part of the sixties, from 1968 through 1969, I was employed as an electronics technician onboard the USNS Redstone (TAGM-20). This ship was part of the U.S. government's civilian maritime fleet. The ship had been retrofitted or converted from a navy fuel tanker. This extensive conversion had increased the overall length to over 800 feet, increased the width/beam to approx. 45 feet (beam at the widest point on the main deck) resulting in a greater weight displacement. That retrofit included the installation of state-of-the-art integrated computer-based radar, telemetry, and communications systems. The Redstone was part of a small contingent of specialized vessels designed to operate as range instrument ships. These ships were specifically built for the purpose of tracking and communicating with the NASA astronauts during a series of Apollo missions leading up to and including the Apollo 11 mission to the moon.

The composite ship's crew consisted of two similar yet different personnel components. There was a 50 person maritime crew responsible for the day-to-day ship's operation and a 45 person crew who operated and maintained the various onboard electronics systems. Accommodations aboard the ship were comfortable without being luxurious, not to be confused with a cruise ship. The techs slept two to a room in an air-conditioned cabin just below the main deck. We enjoyed seated wardroom type of dining. The food was prepared by a kitchen staff and it was good. We ordered from a menu and were served by stewards or waiters. All in all, life at that point in time amounted to a very nice, if unique, shipboard living and working experience. However, the ship and its crew existed to serve the NASA ongoing Apollo mission.

My particular visual observation of an event relating to a special Apollo mission began during the pre-dawn hours of July 24, 1969. Two days earlier, the Redstone had arrived at its assigned tracking station/position approximately 300 nautical miles SSW of Guam. The ship, traveling at an estimated speed of 4 to 7 knots, had assumed an approximate eight mile back and forth tracking oval on a general yet exact heading SSW to NNE. The sea state was calm. The bow of the white ship rose and fell with no noticeable roll or pitch being felt. The pre-dawn

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night air felt warm to the rolled up shirt sleeve arm. Visibility appeared unobstructed to the horizon, given the still dark hour. The heavens were clear and full of stars with only slight, wispy high altitude cloud cover.

It is now approximately 0430 local shipboard time. The ship's operating and technical personnel, not on assigned watches or operational duties, are gathered amidships on the open main deck. That certain reason and moment that we had gathered on deck was to witness, if possible, the start of the initial earth orbital reentry of the Apollo 11 CSM (Command Space Module). The CSM contained the three astronauts, Neil Armstrong, Buzz Aldrin, and Roger Chaffee. They were in the final, waning moments of their historical lunar flight, moon landing, and walk on the moon two days earlier. Somebody among us looked almost straight up and calmly spoke; "there it is." One by one we looked up, scanning the dark heavens. It was as if a line in a James Joyce poem had, for the briefest of moments, come to life: "you could see it high up in the sky." I saw the CSM appearing as a sputtering, flickering tiny fire ember wending its way in a westerly-to-easterly slight arc some 100 kilometers (62.14 miles) above our tracking ship's position at an estimated initial reentry velocity of approximately 2,000 knots/hr.

The ablative heat effect associated with the Apollo spacecraft reentry began to present itself. An ablative heat effect is the forces of atmospheric and vehicular aerodynamic heating acting on the leading edge surface of the CSM. One of the signs of this thermal phenomena, presented to an earth-bound observer, is the generation of the burning letter "V" with the CSM located at the center apex point or the tip. This fiery "V" grew wider and brighter as the CSM began its calculated flight reentry decent toward the horizon.

As the CSM (approached approx. 40 degrees above the eastern horizon,) we observed the massive, brilliant fireball of the sun slowly rising in the same horizon location. For several minutes, we watched spellbound the dynamic juxtaposition of these two objects- seemingly on an optical collision course, one with the other. Then the massive sun continued its solemn ascendancy into the sky. The CSM continued its fiery, silent, screaming, visual flight epiphany space voyage, unimpeded across the dawn sky and disappeared over the horizon.

Several hours later, the historic Apollo 11 mission would successfully terminate with the CSM splashdown landing in the Pacific Ocean 950 miles south of Hawaii near (approx. 15 miles) the aircraft carrier recovery ship, the Hornet.

We all watched as the capsule slid over and then disappeared beneath the early dawn horizon. Then, slowly without comment, we began to leave the area of the main deck in ones and twos. It was much like bit actors without lines in a Grecian epic exiting stage left or right. We went to our sleeping quarters. While we may have rested, I doubt if any of us slept after the literal afterglow of what we had just witnessed.

As I lay in my bunk, my thoughts, for no particular reason, drifted back to an earlier historical flight. It is the initial moments of final hours of Charles Lindbergh's historic 1927 transatlantic flight. He descends in altitude from above the gray, briny confines of the Atlantic Ocean early morning skies trying to confirm his bearings. He spots a fishing boat and attempts to ask one of the crew where Ireland is located. For whatever reason, he was unable to get a reply. Lindbergh flies on, in a general easterly heading, for about another hour. Finally, he was able to make positive landmark fixes of Dingle Bay and a small mountain range near the SSW coast of Ireland. Lindbergh, we are, informed through his autobiography, is elated. He is 2.5 hrs. ahead of schedule and an estimated 3 miles off course. He flies on, past the southern coast of England, over the French coast city of Cherbourg as night begins to fall across France. He continued onward toward Paris in near-perfect flying weather reaching and landing at Le Bourget airfield at 10:22pm on the evening of May 22, 1927 to the fervish welcome of 100,000 Frenchmen...and History marches on.